REMARKS

The Applicant responds to the Official Action of May 30, 2003 in accordance with 37 C.F.R. § 1.111. Reconsideration of this application in view of this response is respectfully requested.

Claims 1 through 6, and 8 through 18 are pending in this application. Claims 1 through 6, 8, and 14 are amended and claims 19 - 23 are added by this response.

The Applicant notes that the application was originally filed with a total of 25 claims including 4 independent claims and 21 dependent claims. The Applicant only paid for a total of 24 claims at the time of filing. A check for $18 for the additional dependent claim as originally filed is attached. If this calculation is incorrect or if another fee is due, please credit or charge our Deposit Account Number 12-1210.

The Applicant notes that this response deletes the multiple dependency of claims 3, 4, 5, and 6 and that claim 7 was cancelled in the January 8, 2003, amendment.

1. Objection to Claim 5

The Examiner objects to Claim 5 and requests amendment to correct verb tenses. The Applicant adopts the Examiner's suggestion. This objection is moot.

2. Rejection of Claims 3 through 6 under 35 U.S.C. § 112, Second Paragraph

The Examiner objects to Claims 3 through 6 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as his invention. The problem stems from the fact that Claim 1 refers to "articles" whereas Claim 2 refers to specific articles, namely, "beverage

containers" and dependent Claims 3 through 6 refer to either of Claim 1 or 2. The applicant therefore amends each of Claims 3 through 6 by deleting reference to "Claim 2" and "or selected beverage container" in each of the Claims 3 through 5 and by deleting reference to "or said beverage container" in Claim 6. It is believed that these amendments address the Examiner's concern and that this rejection should therefore be withdrawn.

In addition, the Applicant adds new Claims 19 through 22, dependent on Claim 2, to replace original Claims 3 through 6. It is believed that a short general discussion of the present invention would be instructive in the present circumstances.

Summary of the Present Application Method and Device:

This device is designed to deal with relatively smaller and lighter articles such as empty or filled beverage bottles traveling along a conveyor pathway at commercial speeds - up to 1,000 or more items per minute; that is in the region of *20 items a second.* At those speeds, it is essential that the article-contacting deflector member ("paddle" in the present application) moves extremely rapidly and deals with each item in a small fraction of a second. Clearly, there is little time in such a system to gently guide each articles and, *virtually instantly*, be in a position to handle the next item which is adjacent the first and can actually be touching the first. The paddle therefore, and the item, is subject to rapid acceleration to ensure the fast movement required to impart the required angular thrust to *sweep* the item to the desired location. To emphasize, the item is provided with desired angled thrust by the paddle in a very short time and then proceeds to its destination whilst the paddle returns immediately to its base position. Longitudinal movement of the conveyor and what it imports to the item is not *solely* relied on for flexibility in achieving the bottles' destination. In summary, the present device could propel an item directly across the conveyor or even, if desired, at an angle backwards to the direction of travel of the conveyor, as well as the usual angled forward direction.

Moreover, in the embodiment described in the present specification, the paddle accelerates to contact and sweep the bottle from the conveyor following which, it rapidly decelerates to a stop; reverses direction, and returns to its base position *outside* of the path of travel of the bottles. To be more specific, in the commercial operation contained in the present specification, the paddle extends a total of 21 degrees outwardly from its base position parallel to the conveyor wall. This means that the downstream (i.e. outermost) edge of the paddle (length 6.9 cm - see page 20 of the Specification) travels about 2.5 centimeters (cm) away from the conveyor wall. The items, in this case, beverage bottles, each have a diameter of about 6 cm. and the conveyor upon which they are traveling is, obviously, a little wider than that. It can be seen, therefore, that the paddle extends much less than halfway across the conveyor in providing the desired thrust to propel - and not simply remain in contact with and guide - the bottle off the conveyor to the desired location. Moreover, the *same* paddle can sweep bottles to different locations in response to different predetermined signals. Furthermore, the speed of response of the synchronous motor is much greater than conventional motors and much more so when the paddle is carried directly by the motor drive shaft.

Discussion of Revised Claims and the Cited Documents:

U.S. Patent Number 6,041,910 to Avery et al.

This device was developed to gently push large heavy objects moving relatively slowly along a conveyor into a chute at one location. This is achieved using a large specially shaped pusher arm which is rotated by a motor from a base position at a side of the conveyor to extend across substantially the full width of the conveyor during which it contacts, and gently guides a piece of baggage off the conveyor. It then continues around until it regains that base position which it stops to repeat the cycle if so instructed. It is emphasized that, as well as being

designed to avoid rapid movement of the baggage for damage avoidance reasons, rapidly "hurling" bags weighing tens of pounds around would not be appreciated by their owners!

It is *critical,* if the objective is to be achieved, for the arm to move at a *constant velocity* when in contact with the baggage. Any acceleration of the pusher is obviously completed prior to contact with the baggage. Prior art devices which contacted the baggage with changing velocity, i.e. while the arm was accelerating, caused damage which this device was designed to prevent. To achieve this end, the pushing surface of the arm is uniquely designed to ensure that each point on that surface moves at the same velocity which provides the constant gentle push to the baggage as it is being moved off the conveyor. The motor assembly includes a reducer/cone to ensure this relatively low velocity. The item is always in constant contact with the arm and is, in effect, *guided* until it falls off the conveyor at substantially the same location at all times. To emphasize, the baggage is not thrust **in a sweep** away from the arm, it is merely gently directed or guided. In a word, this device does not effect a "sweeping" action which positively thrusts an article off the conveyor; it is virtually a passive "directing" action.

U.S. Patent Number 4,836,387 to Cottrell

As discussed in some detail above, the device of U.S. 4,836,387, operates to similarly gently push or guide heavy articles which actually *fall* off a conveyor. It is essential that the pushing member is at the same velocity along its full length so that any item of baggage it contacts is not subjected to a change in thrust or pressure. This is required "to avoid high velocity contact between the push surface and baggage and possible damage to the baggage" - see Col. 2, line 30 et seq. U.S. 6,041,910. It is clear that the care taken to ensure a smooth low velocity means that no acceleration takes place during the diverting action.

In contradistinction thereto, the bottle being diverted by the device of the present invention is subjected to an accelerating paddle and is *thrust away* by a sweeping motion of the paddle. This mode of operation is essentially the opposite of that taught in EP 0 903 309 A, which is essentially a simple direction motion to one fixed exit part into which the heavy baggage simply falls.

3. Rejection of Claims 1, 3 through 6, 8 through 10, 12, 14, 15, and 17 under 35 U.S.C. § 102(b)

As the Examiner will be aware, devices of the type disclosed in the Avery et al patent are installed at airports and the like (refer for example to Col. 1, lines 44 - 48 of U.S. 4,564,105 to Brouwer et al discussed in Avery at Col. 1, lines 11 *et seq.*) That reference also describes the 360° rotation of the pusher arm and the fact that they are capable of 80 cycles a minute. Compare that rate to that routinely achieved by the device of the present invention - up to 1,500 or more bottles per minute - please refer page 2 of the present specification; moreover, the bottles can be immediately adjacent - or even touching - a situation it is submitted the Avery and similar devices obviously cannot handle since the second and contacting articles would most probably and simultaneously be directed off the conveyor.

The Examiner is required to support a rejection based upon anticipation with a reference that discloses each and every limitation of the claimed invention. The Avery et al patent discloses a device for directing a relatively large and weighty article off a conveyor, it being essential that this be affected at constant velocity. The "pusher can" is specifically designed and operated to contact the baggage at constant velocity. It is submitted that this is not even the starting position for a device to positively "sling" - refer page 9, line 25 of the present invention - smaller articles traveling at high speed off a conveyor using a paddle capable of being rapidly accelerated and de-accelerated. Moreover, Avery et al does not disclose:

(i) Removal of the pusher by reversing the rotation. This is important in providing a smooth operation at the extremely high rate of article rejection; and

(ii) The ability to direct rejected articles to different locations using the same device by programming the motor to react to different signals from a sensor.

In summary, the device disclosed and its operation as taught by Avery et al cannot perform the presently claimed invention and, it is submitted, is not an anticipation of Claim 1. Reconsideration of this rejection is respectfully requested.

Furthermore, for the same reasons, independent Claims 8 and 14 are also not anticipated by Avery et al and the sub Claims 3 - 6, 9, 10, 12, 15 and 17 are not anticipated being dependent on patentable claims.

4. Rejection of Claims 1 through 6 and 8 through 18 under 35 U.S.C. § 103(a)

The Examiner rejects Claims 1 through 6 and 8 through 18 under 35 U.S.C. § 103(a) being unpatentable over U.S. 2,945,588 to Fenn in light of U.S. 4,836,387 to Cottrell. The Applicant traverses this rejection and requests reconsideration.

Turning to the latter first, this simply teaches how to position a deflector member 21 *prior to the arrival of* an article to be diverted into one or the other of two possible paths. Essentially, it teaches a method of replacing a spring return - refer Col. 3, lines 18 - 20 - or two solenoids - refer Col. 3, lines 25 et seq. The deflector can only move between two fixed positions since anvil or activator 15 can only move between end stops 178 and 18. To emphasize, member 21 is simply a gate - refer title - or deflector - it does nothing but be contacted by a moving articles which, using *its* inertia and motion, moves into one of two paths.

To emphasize, "Cottrell's concept of replacing the solenoid with a stopper motion ..." page 8, lines 7 et seq. of the latest action does not teach or even hint of the *sweeping action* of the present invention. Cottrell is only concerned with locating a passive deflector member at one of only two locations prior to the arrival of an article to be deflected.

Turning to Fenn et al, this patent was, of course, discussed in our early Response but we submit the following points which we feel need to be emphasized:

(1) Ejector arm 73 is simply a pusher - akin to the pusher members in prior art "bopper" devices but operating at lower speeds. It does not actually "rotate" - the bottle contacting (slightly arcuate member) essentially moves laterally right across the conveyor belt 13 "... to *push* the container onto take-off table 57" - refer Col. 5, lines 2 - 3.

(2) As stated, the bottle-containing portion of pusher arm 73 is shaped presumably to solidly and consistently contact bottles A. However, if the timing of arrival of a selected bottle B at the ejection station is not exact - say the situation shown in FIG. 6 of Fenn - and the pusher 73 is activated in the position shown, the bottle would be pushed by the extremity of the acute portion of 73 in an uncontrolled manner and cause the same difficulties discussed in the present specification for the bopper action.

(3) The action in Fenn is a simple lateral *push* of the bottles B with the bottle - contacting portion of pusher arm 73 extending completely across the conveyor belt B (and actually slightly off the side - refer FIG. 10). Also, the bottles B are pushed to one specific location into/onto which they simply "fall".

(4) The disclosed device *requires* that bottles following a bottle selected for removal be held up pending removal of the bottle B being removed. It even provides for a back-

up if wheel 45 fails to stop the (following) containers - refer to Col. 5, lines 3 et seq. This is clearly opposite teaching to the present invention where the paddle is specifically adapted *not* to contact at one time other than the *one* bottle being ejected.

Summary

Fenn teaches what is, in effect, a pusher or bopper device. Cottrell teaches the use of a "stop motor" to move a deflector/gate member rapidly between two positions defined by end-stops *before* an article arrives at the gate. Combining the motor of Cottrell with the device of Fenn would, simply, result in the pusher device of Fenn operating at higher speeds. It would, in fact, provide a prior art "bopper" device as discussed in the present specification.

It is submitted that the Fenn - Cottrell combination does not render unpatentable independent claims 1, 2, 8 and 14 and consequent Claims 3 through 5, 7, 9 through 13 and 15 through 18 dependent on those claims. Finally, newly added dependent Claims 19 through 23 are, for the same reasons, patentable.

Reconsideration of these rejections are respectfully requested.

5. Rejection of Claims 1, 3 through 6 and 8 through 10 As Being Unpatentable Over U.S. 4,549,272 to Hagen et al. in Light of Cottrell

Firstly, the Hagen et al. patent discloses an apparatus for filling container with a prescribed weight of a product. The apparatus incidentally uses articles diverting mechanisms 210, 212, etc. which are simple gates or blades, 210a, etc. arranged, when required, to block an article's passage along conveyor 208. The decision as to which articles are to be diverted is made very early - in fact, "virtually immediately after the article exits opening 36" - refer Col.

12, lines 7, et seq. This allows the gates 210a et seq. to be moved into position well prior to the arrival of the article which simply contacts a "blocking" blade and using the movement impacted solely via conveyor 208, is guided right to the edge of conveyor 208 and falls into a container R - refer FIG. 4 where container #2 is involved.

As discussed above with respect to the Fenn et al. and Cottrell combination, Cottrell simply adds a faster way of moving, in this case blades 210a, 212a, etc. into position to allow them to be contacted by a moving article; the blades do not provide a "sweeping" action as required by the present invention - they simply guide an article right to the edge of the conveyor 208 and allow it to drop off the conveyor at one specific location.

Further, as noted above, there is not need even to add speed to the blade movement in Hagen; he clearly states there is enough time for the blades to take up the desired positions - refer again to Col. 15, lines 6 et seq. of Hagen.

To summarize, neither Hagen nor Cottrell, alone or in combination, described positive *sweeping* of an article off a conveyor. Both Hagen and Cottrell only teach the provision of a diverting member to be in place across the conveyor *prior to the arrival* of an article which, effectively, slides along the stationary diverting member until it falls off the conveyor.

Consequently, it is respectfully submitted that each of independent Claims 1, 8 and 14 are not rendered obvious and are patentable over the disclosure of U.S. 4,549,272 to Hagen et al in view of Cottrell.

Moreover, all claims dependent on those claims are also, we submit, patentable and reconsideration of those rejections is respectfully requested.

Finally, new Claim 23, dependent on Claim 1, adds the reversing of the rotation of the paddle feature to the device of Claim 1. It is respectfully submitted that the basis for this claim is located in the specification at page 9, lines 22 et seq. and elsewhere.

6. Rejections of Claims 13 and 18 As Being Unpatentable over Avery or over Hagan in view of Cottrell or over Fenn in view Cottrell

The Examiner rejected Claims 13 and 18 under three separate rejections. The Applicant traverses these rejections and requests reconsideration of each rejection.

The Applicant's comments above, describing the claimed invention and the Examiner's citations, fully address these rejections. The Applicant has explained the non-obviousness of his invention, including the invention of Claims 13 and 18. Therefore, the Applicant believes that these rejections should also be withdrawn.

Conclusion

The application is believed to be in condition for allowance. Favourable consideration of the application is respectfully requested.

Respectfully Submitted,

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